High-Sensitivity Semiconductor Photocathodes for Space-Born UV Photon-Counting and Imaging, Phase I

Completed Technology Project (2006 - 2006)

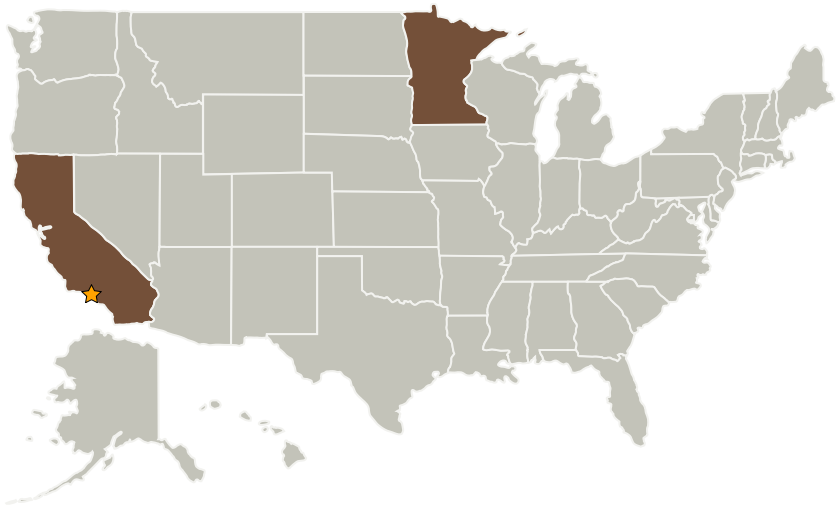
Project Introduction

Many UV photon-counting and imaging applications, including space-borne astronomy, missile tracking and guidance, UV spectroscopy for chemical/biological identification, and UV medical imaging, demand very high performance in detector sensitivity, speed, resolution, and background noise. This proposal is directed toward the development of innovative high-efficiency UV photocathodes based on the wide bandgap III-nitride semiconductors for reliable operation in space missions.

Anticipated Benefits

Potential NASA Commercial Applications: Detection of light in the ultraviolet (UV) range (wavelength < 400 nm) has a wide range of applications, both commercial and military, particularly in those areas where the UV component of light needs to be analyzed in the presence of large visible and/or infrared (IR) backgrounds. The proposed work can also result in the development of high-brightness electron emitters for applications in metrology and maskless electron lithography.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
SVT Associates	Supporting Organization	Industry	Eden Prairie, Minnesota

Primary U.S. Work Locations	
California	Minnesota

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Amir Dabiran

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.1 Detectors and Focal Planes